



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/796,310

03/08/2004

David S. Melton

31592-UT-1001

2088

5179 7590 03/18/2008

PEACOCK MYERS, P.C.
201 THIRD STREET, N.W.
SUITE 1340
ALBUQUERQUE, NM 87102

EXAMINER

BARTON, JEFFREY THOMAS

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/796,310	Applicant(s) MELTON ET AL.	
	Examiner Jeffrey T. Barton	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 14 December 2007 does not place the application in condition for allowance.

Status of Objections and Rejections Pending Since the Office Action of 20 September 2007

2. The objections to claims 1, 5, and 7 are withdrawn due to Applicant's amendment.
3. The rejections of claims 7 and 11 under 35 U.S.C. §112, second paragraph are withdrawn due to Applicant's amendment.
4. The rejection of claims 1-11 under 35 U.S.C. §103(a) as unpatentable over Barker et al in view of Azzam et al is withdrawn due to Applicant's amendment.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1795

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 2, 4, 5, 7, 8, 10-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shingleton (US 6,058,930) in view of Nath et al. (26th PVSC reference)

Regarding claim 1, Shingleton teaches a shelter providing solar tracking assembly (Figures 2-10) comprising a fixed support structure comprising a support pillar having an end connected to a ground surface and extending substantially vertically (Piers 56; Column 6, lines 14-20); a horizontal support beam as claimed (Torsion Tube 32 or 52; Figures 9A and 10; Column 7, lines 35-40); at least one drive assembly (Column 6, line 59 - Column 7, line 15); a solar array disposed on the support structure (Figures 9A-9C and 10; Column 7, lines 26-51; each beam 32 supports a plurality of solar panels), the solar panels comprising solar cells (Column 1, lines 12-15), the arrays

Art Unit: 1795

being moveable on an axis in communication with the drive assembly to track movement of the sun as claimed (Column 6, line 59 - Column 7, line 15; Column 2, lines 30-57); said solar power array forming an overhead canopy (Any elevated, flat, substantially horizontal surface reads on this limitation, such as this array at noon, for example); and wherein the support pillar is of a height permitting placement of an object underneath the canopy as claimed. (Ground clearance is shown in the figures, small objects could clearly be placed beneath the arrays without obstruction)

Regarding claim 4, clearly, photovoltaic devices require output connectors in order to make any use of the electricity generated by the cells. This is inherent in the system of Shingleton.

Regarding claims 5 and 13-16, Shingleton does not explicitly disclose the vehicles claimed or specifically call the structure a carport, but Shingleton suggests placing the tracking structure atop a parking ramp. (Column 8, lines 43-45)

Regarding claim 7, Shingleton discloses rotor bearing assemblies atop the support pillars. (e.g. Bearings 40 or 90 allowing rotation of the panels; Column 5, lines 57-59)

Regarding claim 8, Figures 9A-9C and 10 show plural arrays of panels, and multiple support structures.

Regarding claim 10, Figures 9A-9C and 10 show longitudinal connection of multiple arrays. (e.g. pairs of arrays disposed on opposing sides of linkage mechanism 68 in Figures 9A-9C, pair of arrays 34 shown in Figure 10)

Regarding claim 11, Shingleton shows pairs of arrays disposed as claimed in Figures 9A-9C and 10, multiple support structures 36 having rotor bearings are shown disposed as claimed in Figure 10. As seen in figure 9, one end of each array is connected to the drive assembly (e.g. actuator 42) via linkage mechanism 68.

Regarding claim 12, Shingleton discloses a drive assembly (Figures 3A and 3b) which comprises a coupler (i.e. pin joining actuator arm 64 to torque arm 66) disposed within a plate (i.e. 66 and overlying support plate for panel 54) and wherein the coupler is attached to an end of the horizontal support beam (via arm 66 and bearing 60) and rotatable within the plate. (Comparison of Figures 3A and 3B demonstrates that the pin connecting 64 and 66 must be able to rotate within the plate)

Regarding claim 18, torque arms (e.g. 46) are portions of the drive assembly, and are attached to the horizontal support beam and disposed as claimed. (E.g. Figures 2A-2C)

Regarding claims 19 and 20, the arrays of Shingleton are movable on a single axis defined by the longitudinal axis of the support beam. (Column 2, lines 30-57; Figures)

Shingleton does not explicitly disclose providing power to a nearby structure or providing the instant inverter. Specific to claims 5 and 13-16, Shingleton does not explicitly disclose the vehicles claimed or specifically call the structure a carport, but Shingleton suggests placing the tracking structure atop a parking ramp. (Column 8, lines 43-45)

Nath et al teach photovoltaic roofing elements for covering parking structures, which includes an inverter, and which feed electricity to the utility grid. (Page 1343, 1st column, 1st paragraph) Nath et al's carport provides parking for up to six cars on the ground surface on which the carport is disposed. (Page 1343, 1st column, 1st paragraph, figures 5 and 6)

It would have been obvious to one having ordinary skill in the art to modify the system of Shingleton by specifically providing an inverter and configuring the system to provide power to the local utility grid, as taught by Nath et al, because Nath et al teaches that this is an effective means of utilizing power generated by the photovoltaic structure. Providing an inverter for conversion of DC power from photovoltaic systems to AC for use in conventional residential/commercial systems is conventional, as is the provision of the generated power to a local utility grid, and these features provide the predictable result of providing power in a form suitable for conventional AC powered loads connected to the grid. Within this combination, the power within the grid (including that provided by the photovoltaic system) will obviously be used to provide power to nearby buildings that are connected to the grid.

Regarding claims 5 and 13-16, it would have been obvious to one having ordinary skill in the art to modify the system of Shingleton by providing the photovoltaic structures as a carport covering multiple parked vehicles, as taught by Nath et al, because Nath et al shows such disposition of solar panels, and Shingleton suggests placing the tracking solar structure over a parking ramp. Such use of the system of

Shingleton would have provided the predictable benefits of power generation and protection of parked vehicles.

Regarding claim 2, within this combination, other generators that are inherently connected to the utility grid read on the instant "back-up generator", as they provide power when the PV system does not.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shingleton and Nath et al as applied to claims 1, 2, 4, 5, 7, 8, 10-16, and 18-20 above, and further in view of Cifaldi. (US 6,372,978)

Shingleton in view of Nath et al is relied upon for the reasons given above.

Neither Shingleton nor Nath et al explicitly discloses a battery to store the power generated by the photovoltaic array.

Cifaldi teaches a battery used to store power generated by solar cells for later use. (Figure 2, battery 76; Column 6, lines 27-33)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Shingleton by providing a battery to store generated power for later use, as taught by Cifaldi, because Cifaldi teaches that such storage means conserve generated electricity not immediately needed. (Column 2, lines 35-51) Such storage means are conventional in the art of photovoltaic generation, in order to provide power when sunlight is not available, such as at nighttime or on cloudy days. The inclusion of such storage means provides the predictable benefit of

Art Unit: 1795

stored electricity for on-demand consumption, and inclusion of such a battery would therefore have been obvious to a skilled artisan.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shingleton and Nath et al as applied to claims 1, 2, 4, 5, 7, 8, 10-16, and 18-20 above, and further in view of Matlin. (US 5,143,556)

Shingleton in view of Nath et al is relied upon for the reasons given above.

Neither Shingleton nor Nath et al explicitly discloses a concrete support pillar.

Matlin teaches photovoltaic array support pillars made of concrete. (Column 5, lines 35-48)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Shingleton by specifically using concrete support pillars in constructing the system, as taught by Matlin, because Matlin teaches that pre-cast concrete pillars are effective members for support of photovoltaic arrays. Concrete is a universally well-known structural material, and would have been recognized as a suitable material for performing the function of supporting the arrays of Shingleton et al. Note that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Response to Arguments

11. Applicant's arguments with respect to the previous rejections have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571)272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

Art Unit: 1795

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art
Unit 1753

JTB
12 March 2008